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ABSTRACT

The purpose of this study was to develop and test a theoretical framework that would examine the structural relationships between select organizational and environmental variables and school district effectiveness in Michigan. The theoretical framework was derived from organizational theory and represents a social-ecological approach to the study of organizational effectiveness using student dropout rate as an index of effectiveness. Data were obtained from 487 school districts during 1972-73. Path analysis was the method of statistical analysis used. School district size, conceived of as an environmental variable, was found to be a major determinant of organizational effectiveness. The evidence for this conclusion was that the dropout rate was higher in schools with higher average daily attendance. (Author/LD)

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SCHOOL DISTRICT ORGANIZATION

AND

STUDENT DROPOUT

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Paper presented at the annual meeting of the American Educational Research Association, Boston, April 1980.

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The purpose of this study was to develop and test a theoretical framework which would examine the structural relationships of select organizational and environmental variables with school district effectiveness. The theoretical framework was derived from organizational theory and represents a social-ecological approach to the study of organizational effectiveness utilizing student dropout rate as an index of effectiveness.

Data was obtained from 487 school districts in Michigan (1972-73). Path analysis was used to test and estimate the effect parameters in the model. School district size, conceived of as an environmental variable, was found to be a major determinant of organizational effectiveness.

SCHOOL DISTRICT ORGANIZATION AND STUDENT DROPOUT[1]

Preface

The problems created by students dropping out of school are serious and likely to increase in the near future. The problems created for the individual who drops out of school have been well documented (Kelly and Pink, 1974). Not only have dropouts decreased their career potential as reflected in their tendency to end up in lower status positions, but they also tend to have higher crime rates than comparable groups that stay in school (Parsons, 1959; Blau and Duncan, 1967).

Much of the previous research on dropouts has used small samples and dealt with dropouts at an individual level of analysis. The NEA (1967) has provided a bibliographic summary of 149 studies published between 1949 and 1966. The main body of this research is concerned with defining dropouts, estimating the magnitude of the problem, identifying the causes and preventing its occurance. Most of the research since that review has remained within the same tradition.

This paper is intended to provide an alternative approach to the study of dropouts based on a theoretical framework derived from organizational theory using the school district rather than the individual as the level of analysis. It is not a study of an individual's decision to drop out of school. The decision by an individual to drop out of school is a function of a complex set of interactions between the person's social environment, personality, and various school factors. Although an exploration of the variables leading to an individual's decision to drop out is a significant and important research area, it represents only one of several possible approaches based on alternative levels of analysis. One alternative approach is based on the district level analysis which is explored in this paper.

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[1]This research was conducted as a part of a research practicum in sociology of education at the University of Chicago. I would like to thank Charles Bidwell, Benjamin Bloom and Judith Monsaas for their helpful comments.

It is my hope that the type of organizational approach illustrated by this paper can be of more general utility for re-conceptualizing other problems faced by school systems, such as accountability and the allocation of scarce resources.

Introduction

Organizational theorists have been primarily concerned with business and government organizations, and rarely with school systems. At the same time educational theorists, who typically have their primary training in psychology are not familar with organizational theory as it has developed within the field of sociology. This has resulted in relatively few studies of school systems conducted from an organizational perspective by either group.

Organizational theorists are becoming increasingly concerned with the question of what makes an organization effective. (See Goodman, Pennings and Associates, 1977 for a compendium of recent research and perspectives.) Educational theorists are also becoming concerned with the identification and analysis of effective schools (Frederiksen and Edmunds, undated). Since the definition of the characteristics of an effective organization is a central theme in organizational theory, and since similar questions are being raised by educational theorists, the logical next step is to attempt a unification of these theoretical perspectives through the application of organizational theory in order to address the questions raised by educational theorists. [2]

There are two important issues that must be dealt with in order to realize the advantages of this unification. The first one involves the problem of developing a meaningful and useful conceptualization of school systems as organizations. The second issue involves the question of what is meant

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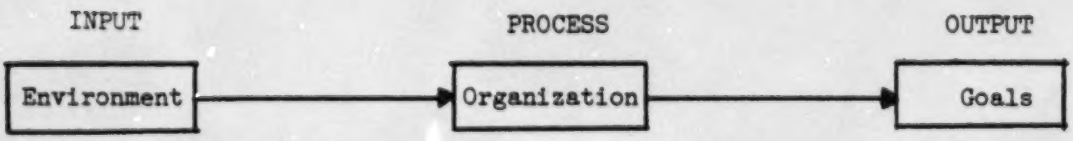
[2] Bidwell and Abernathy (1978) have written a monograph that provides an excellent introduction to organizational theory for the educational theorist who wants a fuller introduction to the organizational literature.

by 'effectiveness'. It will be seen in the next section that the definition of 'effectiveness' is derived from our conceptual model of the school district as an organization.

A model for determining organizational effectiveness

Following Parson's definition, organizations will be considered purposive systems. From this perspective, primacy of orientation to the attainment of a specific goal is used as the defining characteristic of an organization which distinguishes it from other social systems (Parsons, 1956). The specific goals of the system determine the processes or technology utilized by the organization for transforming environmental inputs into outcomes (goals). Although the goals of the system analytically determine the process or technology of the organization, a conceptual model for determining the effectiveness of an organization must take into account the situation or environment in which the organization exists and draws its resources. A conceptual model for examining organizational effectiveness is given below.



The general idea is that the environment in which the organization exists will affect the processing of the organization that transforms the environmental inputs into output or goals. The actual process or technology used by the organization is reflected in its organizational structure. The organization processes the environmental inputs in order to achieve the goals of the system. One way then to define the effectiveness of an organization is in terms of how well it achieves its goals in light of its environmental

context. The important position of environment in determining organizational process and structure implies an open system perspective and one which I have called a social-ecological approach. This perspective is very close to what Aldrich (1979) has termed a 'population ecology model'.

Of course, the above model is a simplification of reality. A more complete model would consider the relationships of one organization to another. The goals or output of one organization become inputs to another system. In the case of school organization, the school system supplies trained and socialized individuals to the local business organizations and society in general.

It is clear that in order to develop a model for examining the effectiveness of a school district organization specifically, we must specify the goals of the system, the nature and structure of key organizational processes, and lastly the relevant environmental factors of the school district. Effectiveness will then be defined in terms of how successful the school district organization is in achieving its goals within its ecological context.

The school district as an effective organization

One of the major goals of educational organizations is to bring about changes in the behavior of students. Specifically, school systems are client serving organizations with a central goal of preparing students for adult status. This preparation involves the moral and technical socialization of students through instruction and training in the knowledge, skills and moral orientation necessary for survival in an adult society.

The goal of 'producing' adequately socialized individuals focuses on the service which the educational organization is providing to their clients, the students. Under appropriate conditions, an effective school system is one

in which the greatest number of students successfully complete their schooling and are able to function well in an adult society. Effectiveness implies for individuals that they will find adequate employment and be able to live productive successful lives.

In addition to serving students through the socialization process, educational organizations are also providing society with a pool of potentially productive members. It is clear that the goal of student change through moral and technical socialization provides a service to both the individual and society as a whole.

The next step is to determine how educational organizations perform their socialization function. This is essentially a question concerning the process or technology utilized by the school system.

One way to define the technology is to examine the 'practical principles and codified means of instruction' used by the school organization (Bidwell, 1979). A large part of what may be considered the technology of the school organization would then be located in the professional teaching and support staff employed by the schools. Although there are important non-human resources, such as books, equipment and other instructional materials, the decision rules for their combination and application are a strong function of the preferences of individual teachers (Bidwell,1979). The actual 'work' of the school organization takes place in classrooms and is labor intensize relative to other organizations (e.g., manufacturing). In sum, the key organizational processes employed by the school district organization in order to realize its goal of client socialization will vary within and between organizations as a function of the 'preferences' of the teaching staff of the school. An analysis of the organizational effectiveness of a school district would then have to include some measure of the teaching staff that

might reflect their 'preferences' and under ideal conditions a more specific index of the actual processes utilized by the teachers. In this paper teacher qualifications as measured by percent of staff with masters degrees serves as a rough index of teacher preference and ability to combine instructional resources. Pupil teacher ratio is another organizational variable that is likely to have an effect on the instructional processes engaged in by the teaching staff.

The final step in the development of a model of school district effectiveness is the specification of the relevant environmental factors or the ecological context of the school organization. Environment can be defined by four key factors. These are the size of the student population served, the composition of this population, the location of the school district and fiscal resources available to the district. These factors define the immediate, short-run context in which the school organization must operate. The technology employed by the school organization is then defined as a function of these environmental factors. The environmental factors constrain and determine the organizational structures as reflected in the school district's technology by setting limits on the availability and qualifications of staff available for employment. They also reflect community preferences for certain organizational attributes. In addition, the environmental context is the source of the student population that the school district must serve.

Given this perspective on school district organization, and our preliminary notions of technology and environment, it is apparent that our index of effectiveness can be derived from the major goal of client socialization.

One possible definition of effectiveness derived from this perspective could be based on the quality of output or in other words an index of how

well the school district is performing its service function. At the district level of analysis, a rough index of quality of output could be based on mean or median student achievement. In fact, in their pioneering work on school district organization, Bidwell and Kasarda (1975) used median student achievement as an index of organizational effectiveness.

In this study, an alternative criterion of organizational effectiveness will be utilized. As pointed out earlier, school districts are client serving organizations that exist to meet the needs and serve the interests of their students (Campbell, et al., 1975). In order to realize the goal of student change, an effective organization is one in which the greatest percantage of the clients perceive themselves as free to use the organization for their own ends (Cummings,1977). The participation, involvement and commitment of students to the schooling process is essential in order to have an effective school district. Since students are involuntary participants in the educational process and are required by law to be in attendance up to a certain age, it is extremely difficult to ascertain student participation, involvement and commitment. Recent research in educational psychology on variables such as time-on-task and various other indicators of student involvement suggest that there are various degrees of withdrawal from the schooling process even when the students are physically in the classroom (Bloom, 1974). Other more extreme forms of withdrawal and rebellion are skipping classes, student absence, truancy and dropping out.

Dropout rate will be used as an indicator of student withdrawal from the educational system which reflects the clients' perceptions that the school district is not meeting their needs. The movement from compulsory status to voluntary membership when the student reaches the legal school leaving age represents a profound change in the student-teacher and

student-school district relationship which provides a unique opportunity for assessing a school districts effectiveness. It represents the first time that students can legally voice their dissatisfaction by leaving a system that is not meeting their needs.

Dropout rates in addition to representing a failure to meet students' needs can also be considered a failure to meet the service function the school organization provides to the community. Dropouts tend to have higher crime rates which means that the community is at greater risk when drop out rates are high. In addition, the costs of imprisoning these individuals adds to the motivation to try and reach these individuals at an earlier point through the school system.

The model proposed and tested in this paper is given in Figure 1. The general notions are that the organizational variables (teacher qualifications and pupil-teacher ratios) and one environmental condition (percent minority) will have a direct effect on dropout rate. The other three environmental conditions (size, urbanism and fiscal resources) will have a direct effect on the organizational variables, but will not have a direct effect on dropout rate. The specific hypotheses and rationale for each path will be presented in the next section.

Method and hypotheses

This paper utilizes data based on 487 Michigan School Districts for the 1972-73 school year. The total number of school districts available was 500; 12 districts were eliminated because dropout rates were not reported, while one district was eliminated because it was felt to represent a deviant case. Detroit was the district eliminated because its dropout rate was so different from the other districts. In 1971-72 its dropout rate was 14.28, while the mean in the other districts was 5.14.

This study is a secondary analysis of available data and may be considered essentially an exploratory study. The results should be considered tentative, but nonetheless suggestive of a future research agenda for the study of drop-out rates at the district level of aggregation.

The method of statistical analysis utilized is path analysis. (See Duncan, 1975, for an excellent description of this technique.) A series of regression equations were solved by the method of least squares utilizing the regression program in SPSS.

The variables and their operational definitions are as follows:

ENVIRONMENTAL CONDITIONS[3]

School district size(SIZE) - Average student daily attendance (Log_{10})

Urbanism (URBAN) - Percent of total population in the school district that reside in an urban setting (Census data)

Fiscal resources (RESOURCES) - Total revenue per pupil

Composition (PCTMINOR) - Percent of residents in school district who are minorities

ORGANIZATIONAL ATTRIBUTES

Pupil-teacher ratio (PUPTEA) - Total number of students divided by the total number of teachers

Teacher qualifications (QUALIF) - Percent of teachers with at least a masters degree

DEPENDENT VARIABLE

Dropout rate (DRPOUT) - Percent of students in the 9 - 12 grades who left school

The environmental factors of SIZE, URBAN and RESOURCE are expected to have direct effects on the organizational attributes. Basically, these variables are taken to represent community preferences, involvement and pressure on the school district to meet community needs. In addition, they

[3] The operational definitions of the variables in the model are taken from different sources and will vary in reliability and validity causing an uncertain amount of measurement error. There is also the possibility of

represent variation in environmental factors which will reflect variation in the student characteristics which the school district will have to take into account in order to 'process' their clients and achieve their goals. Finally, the affluence of the community as reflected in the fiscal resources available per pupil will create a very definite framework within which the school district must operate in the short-run.

The organizational attributes of QUALIF and PUPTEA are hypothesized to have a direct effect on DRPOUT. QUALIF and PUPTEA are rough indices of the technological processes used by the district to transform environmental inputs into outputs.

The specific hypotheses and their rationale are as follows:

H1 : SIZE will have a direct and positive relationship with QUALIF.

H2 : URBAN will have a direct and positive relationship with QUALIF.

Previous research (Bidwell and Kasarda, 1975) has shown that school districts that serve larger and more urban populations tend to have more highly qualified teachers. One reason for this relationship is that the larger and more urban school districts are located in communities that attract and have available a larger pool of well qualified teachers. This is because these communities tend to provide more employment opportunities for spouses and offer a wider range of cultural activities, such as theater, opera, ballet, museums and symphonies. In addition, the larger and also the more urban school districts must serve a wider variety of students. There will be many students from lower socio-economic backgrounds that need special attention and remediation which requires more highly trained teachers to meet their clients' special needs.

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definitional dependencies among the ratio variables. These limitations should be kept in mind when considering the results which are reported.

H3 : RESOURCE will have a direct and positive relationship with QUALIF.

H4 : RESOURCE will have a direct and negative relationship with PUPTEA.

In general, the greater the fiscal resources available to the school district, the greater the number of highly qualified teachers and the smaller the pupil-teacher ratio. As pointed out by Bidwell and Kasarda (1975), such relationships are to be expected generally of publicly-sponsored organizations, which are under less pressure than private ones to accumulate capital reserves. In other words, the school district will invest in more highly qualified teachers and attempt to decrease the pupil-teacher ratio rather than accumulate savings. In addition, districts with greater resources available will in general be located in more affluent communities. It is likely that these affluent communities will have more vocal and active parental involvement in the school district. Since qualifications and pupil-teacher ratios are observable rough indices of the quality of services provided by the school district, it is likely that in affluent communities, parents will prefer and press for more qualified teachers and lower pupil-teacher ratios.

H5 : SIZE will have a direct and positive relationship with PUPTEA.

H6 : URBAN will have a direct and negative relationship with PUPTEA.

As the school district becomes larger, it is likely that per pupil shares of teacher time will decrease. This is expected because changes in the size of the student population when coupled with fixed resources in the short run will lead to an increase in pupil-teacher ratio.

If urbanism is taken as an indication of community preferences, then the greater the urbanism index, the greater the community press for smaller pupil-teacher ratios.

H7 : QUALIF will have a direct and negative relationship to DRPOUT.

H8 : PUPTEA will have a direct and positive relationship to DRPOUT.

Assuming that there is a relationship between the educational attainment of teachers and their ability to 'process' students, then the more effective teacher with higher qualifications will be better able to serve the needs of the students, win their commitment to the goals of the system, and encourage the clients to continue to participate in the schooling process, even when they are no longer legally required to remain in attendance.

The greater the number of students which a teacher has to serve, the more difficult it will be to meet the needs of the students and guarantee their involvement, commitment and participation in the schooling process. The service provided by a school district with a higher pupil-teacher ratio will not be as effective as one with a lower ratio which will be reflected in higher dropout rates.

Results and discussion

The correlation matrix, the means and the standard deviations for all the variables are given in Table 1. Table 2 gives the results of the regression of each organizational attribute on the environmental conditions. The regression of dropout rate on all the variables is given in Table 3.

In general, when the parameters of the model are estimated , the hypothesized relationships between environmental conditions and organizational attributes are supported (Figure 2). The effects are all statistically significant and in the expected directions. If the multiple R is taken as a general indication of fit, then the model tends to predict teacher qualifications better than pupil-teacher ratios.

The hypothesized relationship between the two organizational variables and dropout was found to be negligible. There are several possible reasons

or explanations for this finding. One explanation is that the dropout rate is not affected by the school district organizational variables. This would be the equivalent of saying that schools do not affect the commitment of the students to the organization. In other words, we might conclude that the decision to withdraw from school is independent of how well the school district is meeting the needs of the students and is more dependent on exogenous environmental factors. I feel that the conclusion that school districts are entirely ineffective as evidenced by the lack of relationship between teacher qualifications, pupil-teacher ratios and dropout rates to be premature and possibly incorrect.

First, we must consider how well dropout rate really reflects client disatisfaction with the services supplied by the school district. Dropout rate contains students who have left school for many other reasons such as marriage and employment. The dropout rate is at best a fallible indicator of how well the school district organization meets the student needs.

Secondly, we must consider how well we have captured the educational process through teacher qualifications and pupil-teacher ratios. The articulation between these two variables as indicators of the school districts' technology and ability to increase the participation, involvement, and commitment of students is open to question. What is needed is more direct indicators of these constructs that reflect the actual processes engaged in by the teachers and also some index of how the school districts deal with the problem of student needs through special programs such as vocational training and other special student services. A more appropriate model might involve the organizational variables affecting the intervening variables of student commitment, involvement and participation in the schooling process which in turn have a direct effect on student dropout.

One of the interesting findings is the strong direct effect of size on the dropout rate after controlling for other variables on the dropout rate. This may be conceived of as some sort of structural strain which occurs as the organization gets larger and has to serve more clients. The finding that the higher the average daily attendance, the higher the dropout rates, might be explained in terms of Barker and Gump findings (1964) that a much larger portion of small school students hold positions of importance and responsibility. The smaller the school district, the greater the probability of meaningful participation in the school districts' activities which is likely to lead to more involvement and commitment on the part of the students. The extrapolation of this school level finding to the district level is one that warrants further study.

Summary

In general, the hypothesized relationships between environmental conditions and organizational variables were found to vary in the expected directions and to be statistically significant. The relationships between the organizational variables and dropout rate as an index of effectiveness were not statistically significant. The conclusion that school districts' organizational attributes have no direct effect on dropout rates would be premature. Subsequent analyses within a revised theoretical framework based on more direct measures of the school districts' technology are needed along with replications using other data sets before this conclusion would be warranted.

Table 1. Correlation Matrix, Means and Standard Deviations of Variables in the model.

	PCTMINOR	QUALIF	PUPTEA	SIZE	URBAN	RESOURCE	DRPOUT
PCTMINOR	****						
QUALIF	.126	****					
PUPTEA	-.091	-.174	****				
SIZE	.250	.539	.123	****			
URBAN	.238	.628	-.066	.697	****		
RESOURCE	.210	.531	-.302	.285	.426	****	
DRPOUT	.352	.064	.064	.255	.150	.014	****
Mean	2.20	25.1	22.2	3.37	.357	445.2	5.14
Std. Dev.	7.16	11.6	2.39	.403	.396	203.3	2.91

N = 487

Table 2. Unstandardized Partial Regression Coefficients from Regression of Each Organizational Attribute of School Districts on Environmental Conditions (standard errors in parentheses).

Environmental Conditions	Organizational Attribute	
	PUPTEA	QUALIT
SIZE	1.901(.347)**	5.902(1.294)**
URBAN	-.902(.374)*	10.207(1.396)**
RESOURCE	-.004(.001)**	.019(.002)**
(constant)	17.852	-6.680
Multiple R	.386	.708

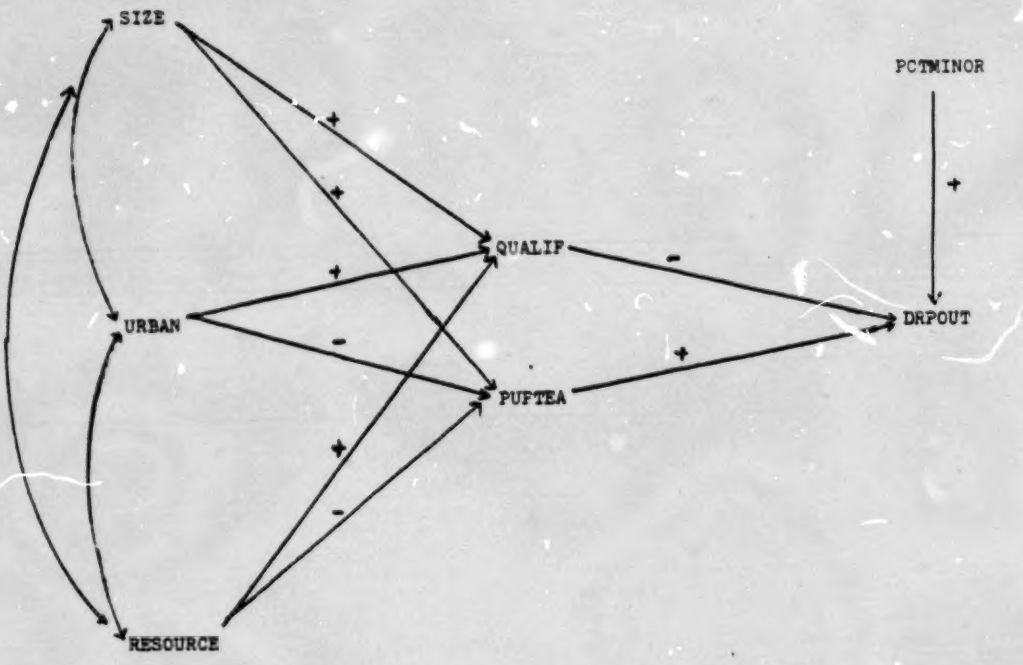
*coefficient is more than twice its standard error
** coefficient is more than three times its standard error

Table 3. Unstandardized and Standardized Partial Regression Coefficients from Regression of School District Dropout Rates on All Independent Variables (standard errors in parentheses).

Independent Variables	DRPCJT (unstandardized)	DRPOUT+ (standardized)
PCTMINOR	.132(.018)**	.325**
QUALIF	-.009(.015)	-.035
PUPTEA	.040(.056)	.032
SIZE	1.689(.449)**	.224**
URBAN	-.246(.478)	-.034
RESOURCE	-.001(.001)	-.078
(constant)	-.915	
Multiple R	.409	

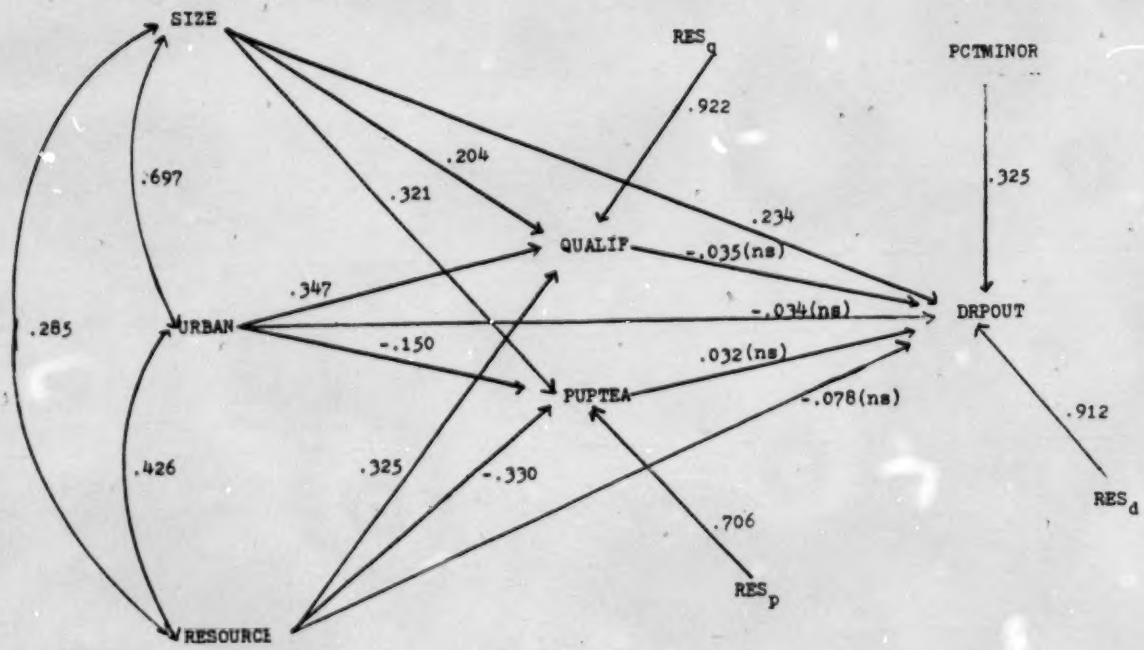
+ Standardized partial regression coefficients are the path coefficients shown in Figure 2.
* coefficient is more than twice its standard error
** coefficient is more than three times its standard error

Fig. 1 A Model of School District Organization and Student Dropout.



Note Paths not shown indicate hypotheses of no relationship between variables
Paths with plus marks (+) indicate hypotheses of positive relationship between variables
Paths with minus marks (-) indicate hypotheses of negative relationship between variables

Fig. 2 Path coefficients.



NOTE (ns) indicates lack of statistical significance
RES indicates residuals (unmeasured variables not included in model)

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